MINE WARFARE… A CORE NAVY COMPETENCY

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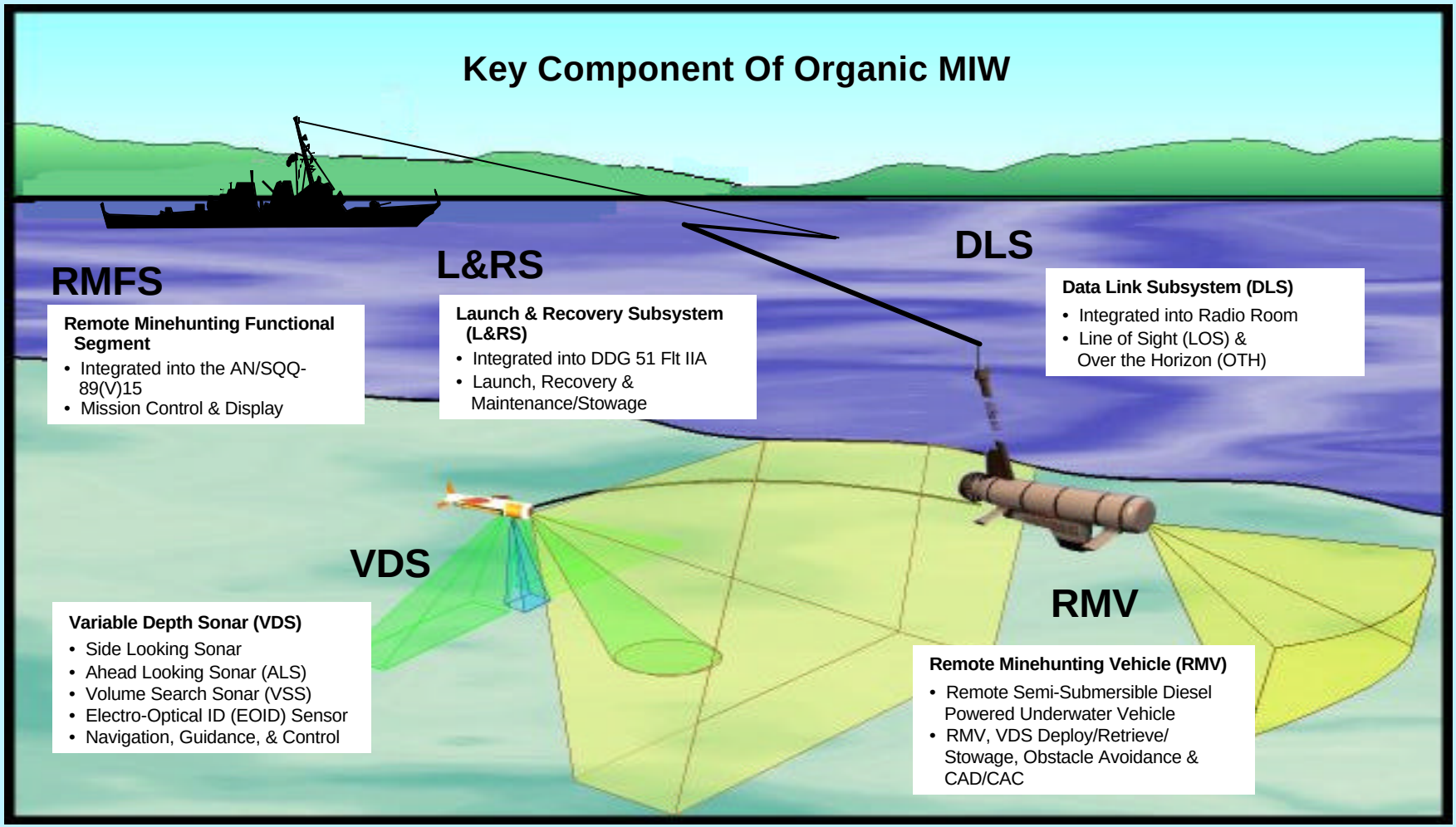
Nov 99

INTRODUCTION

- **INTEGRATION**
- **CONNECTIVITY**
- **AWARENESS**
- **A WAY AHEAD**

AN/WLD-1(V)1
SYSTEM DESCRIPTION

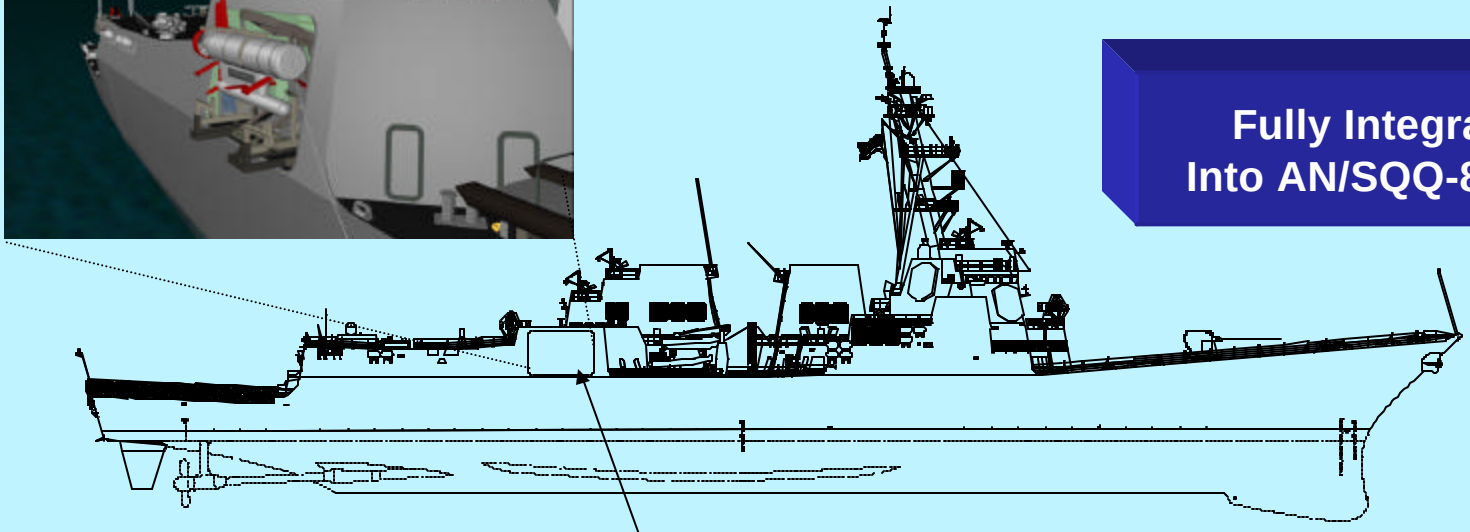


AN/WLD-1(V)1
INTEGRATION ON DDG-51

Launch & Recovery and Maintenance Facility Incorporated into Ship's Design

Integrated with Other Forces through GCCS and Link

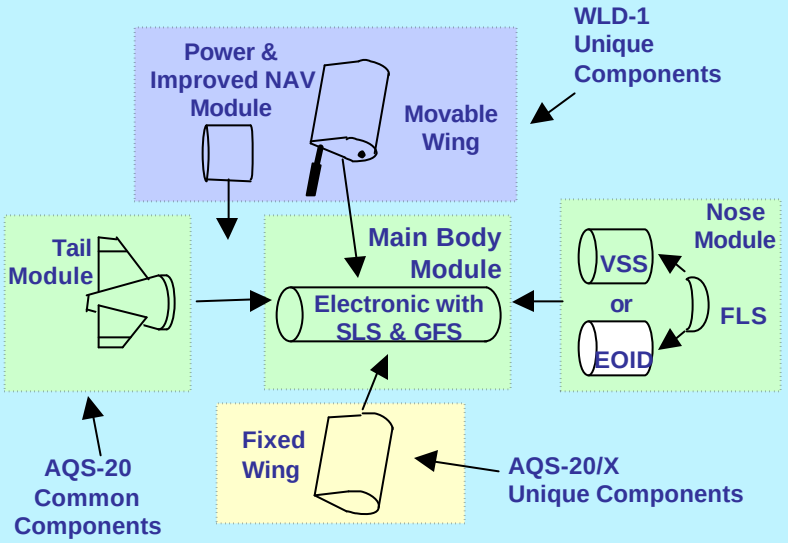
Fully Integrated Into AN/SQQ-89(V)15



Vehicle Enclosure To Maintain Ship's Radar Cross Section

VDS AN/AQS-20(R) TOWED BODY EVOLUTION

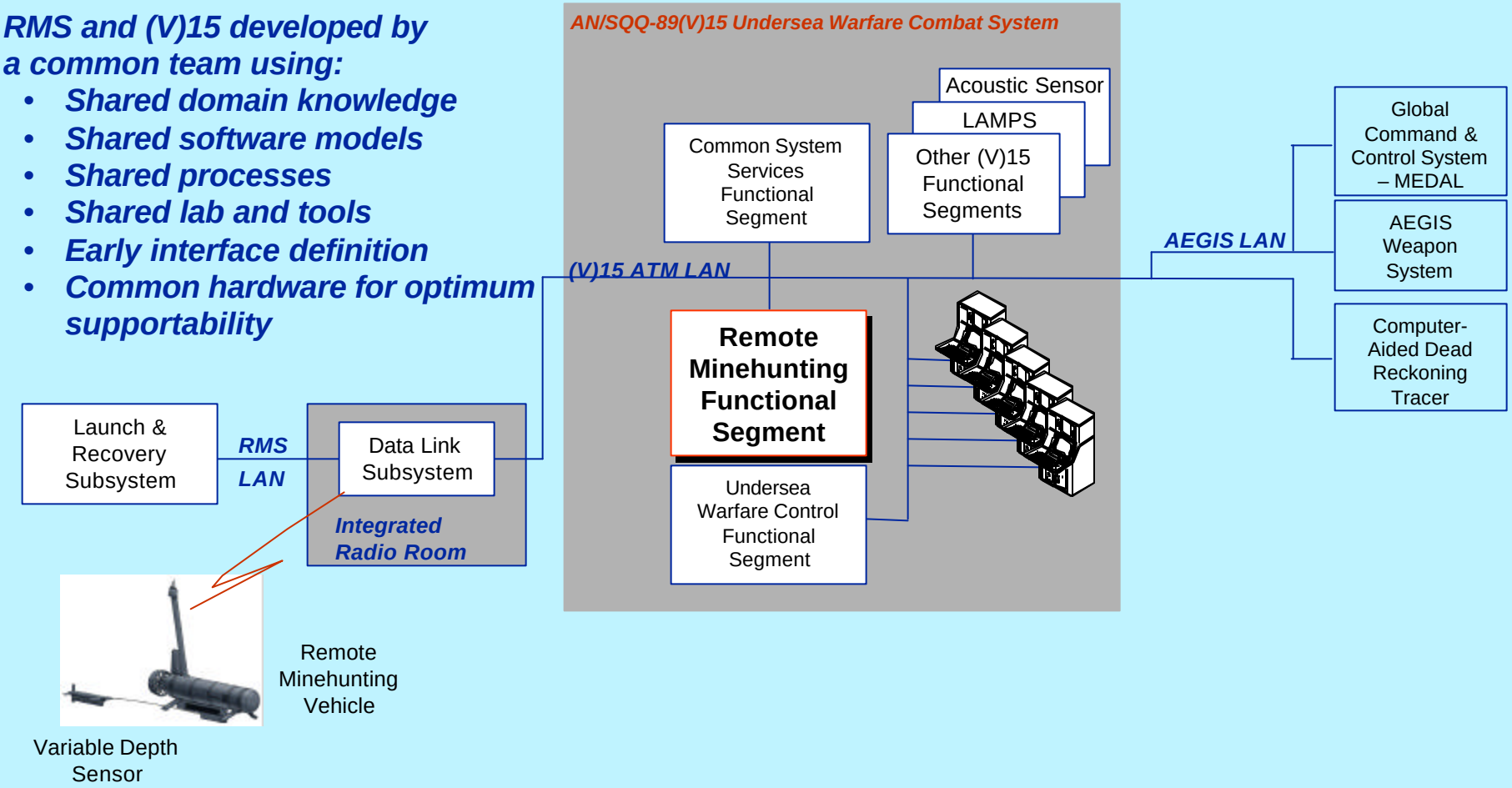
AQS-20 E&MD Towed Body



AN/SQQ-89(V)15 INTEGRATION

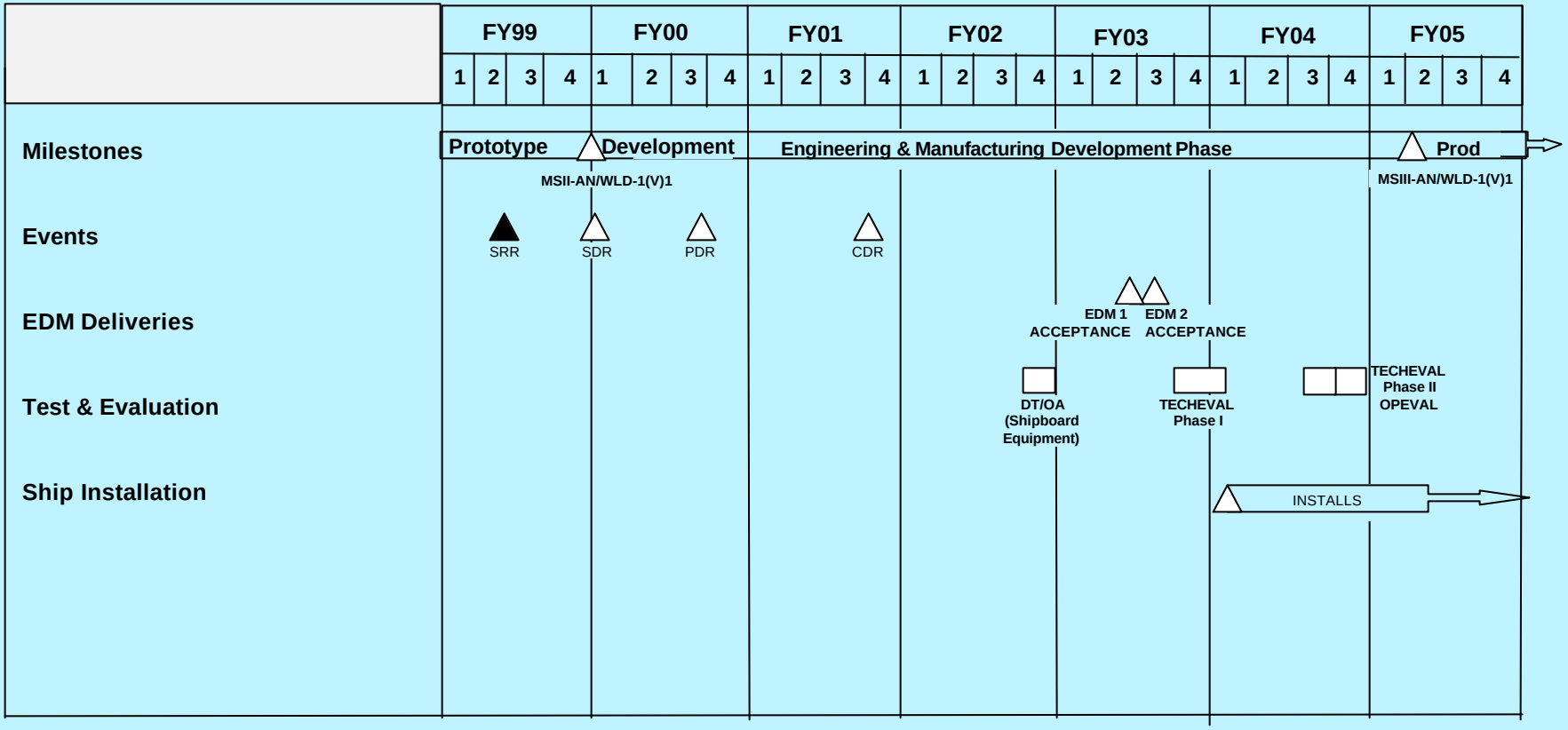
RMS and (V)15 developed by a common team using:

- ***Shared domain knowledge***
- ***Shared software models***
- ***Shared processes***
- ***Shared lab and tools***
- ***Early interface definition***
- ***Common hardware for optimum supportability***



The Remote Minehunting Functional Segment is fully integrated into the AN/SQQ-89(V)15

DEVELOPMENT PROGRAM SCHEDULE

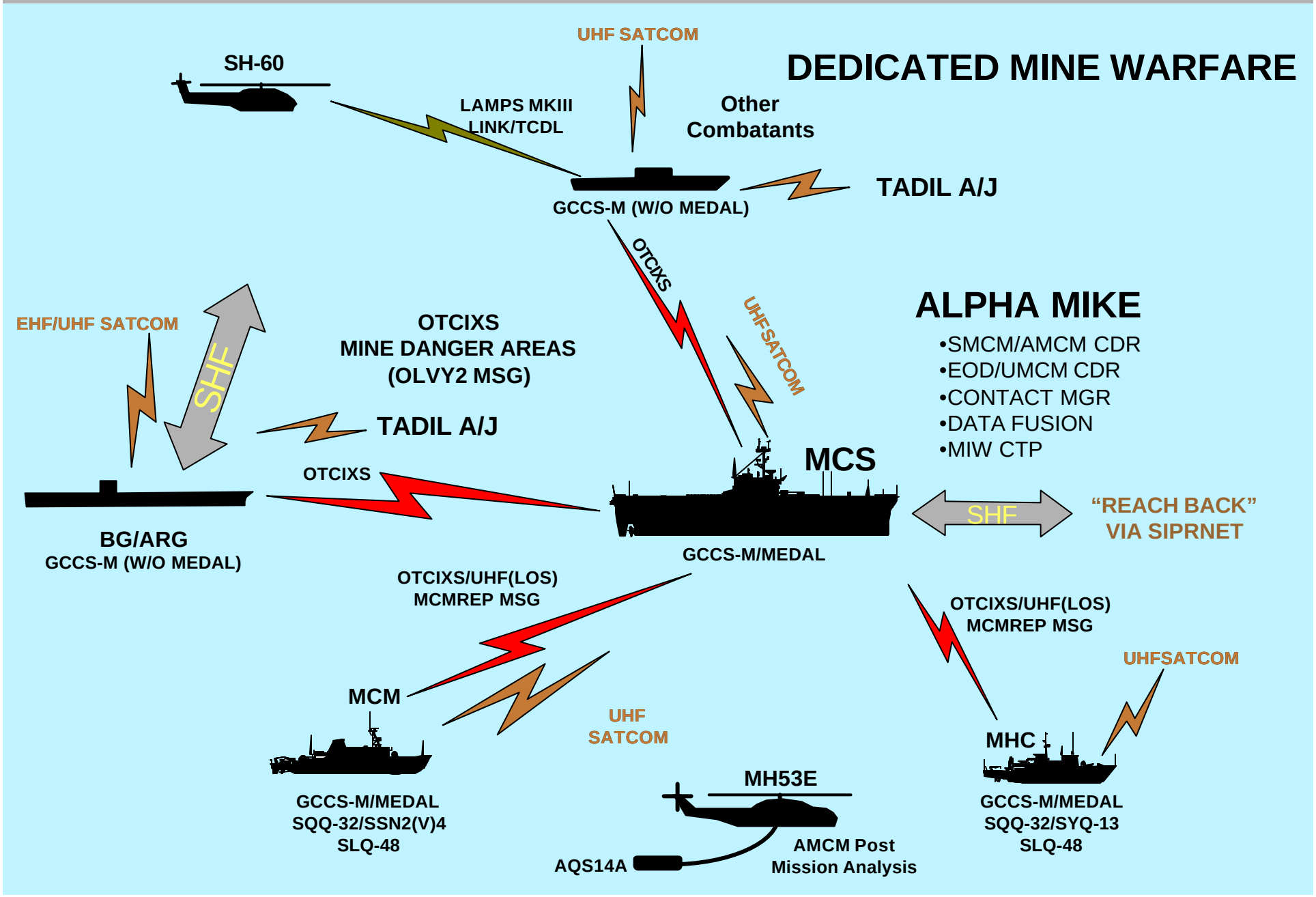


CRUDES ASSET

RMS IS A CRUDES ASSET WORKING WITHIN AND DISSEMINATING INFORMATION OVER A BATTLE GROUP C4ISR ARCHITECTURE…

THE FIX IS CLEARLY NOT TO CREATE A “MIW ARCHITECTURE”, BUT TO PAVE A PATHWAY INTO THE BG/ARG ENVIRONMENT

MIW C4I CONNECTIVITY TODAY



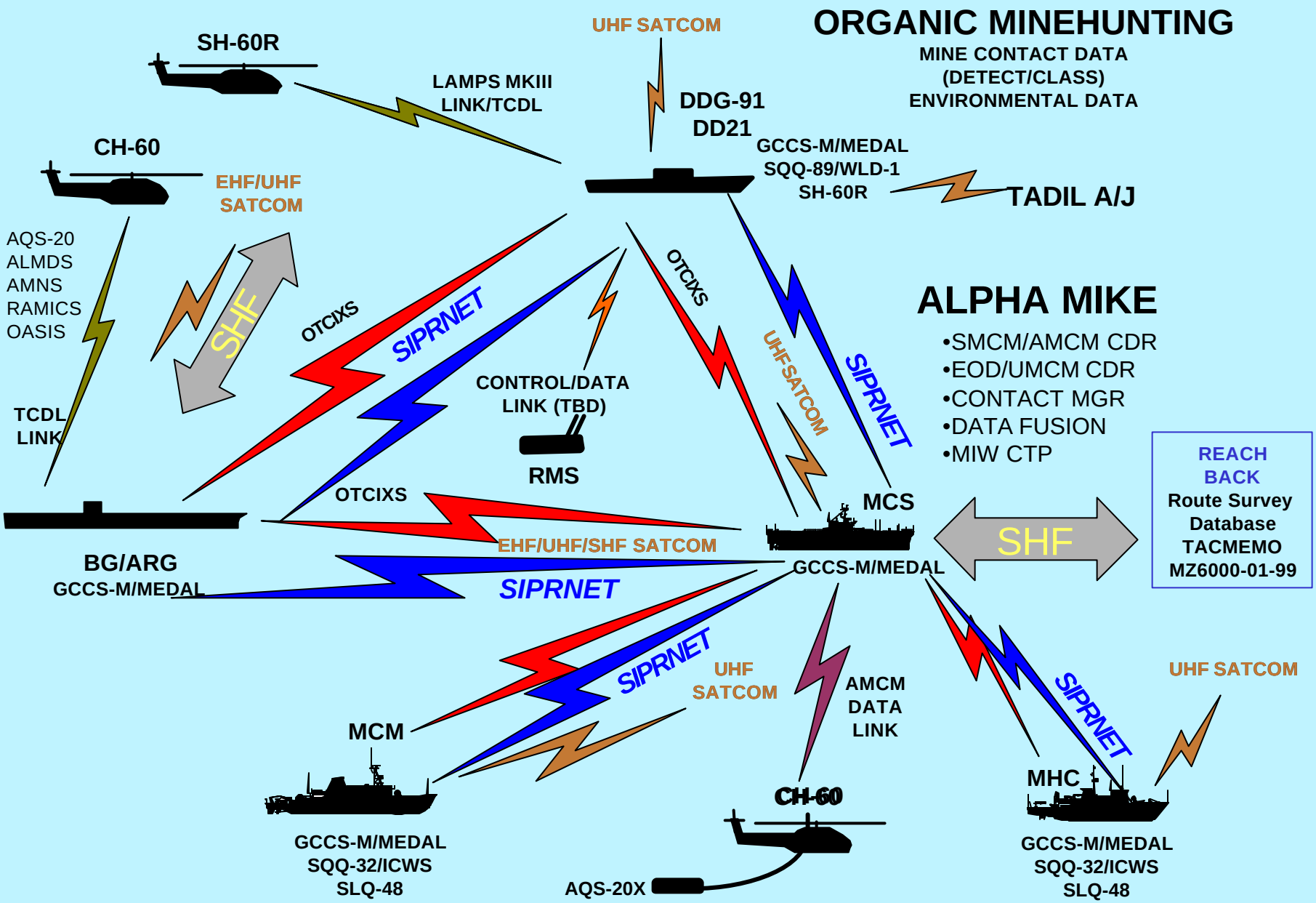
REPRESENTATIVE SMCM C4I CAPABILITIES

- **COMMAND, CONTROL AND COMMUNICATIONS**
  - **GLOBAL COMMAND & CONTROL SYSTEM (GCCS-M V 3.1.1)**
  - **AN/WSC-3(V)15 UHF SATCOM (UPGRD TO MINI-DAMA FY00)**
  - **AN/USQ-64(V)7 OTCIXS (UPGRD TO ON-143(V)14 FY 00)**
  - **OK-454(V) SINGLE DAMA**
  - **AN/SSR-1A SATCOM BCST RECEIVE**
  - **AN/USC-43(V)1 ANDVT**
  - **INMARSAT M**
  - **AN/WSC-3(V)7 UHF LOS TRANSCEIVER**
  - **AN/VRC-46 VHF TRANSCEIVER**
  - **R-2368 HF RECEIVER**
  - **AN/URT-23D HF TRANSMITTER**
  - **NAVTEX**
  - **VHF BRIDGE TO BRIDGE**

(NOTE: NO SIPRNET/NIPRNET CAPABILITY)

…WITH A FAIRLY UNSOPHISTICATED COMBAT DIRECTION SYSTEM

MIW C4ISR CONNECTIVITY FUTURE



MCM CDR

MCM Coord

Dedicated MIW Assets

HIST DATA

INSITU DATA

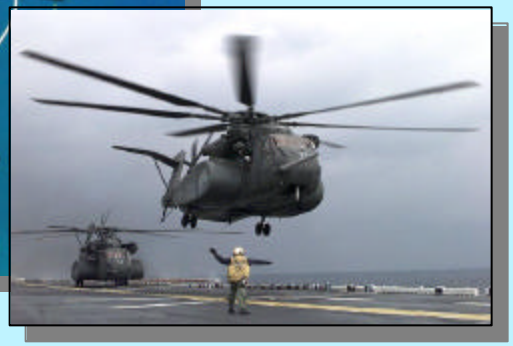
MEDAL

GCCS-M

INSITU DATA

HIST DATA

Organic MIW Assets

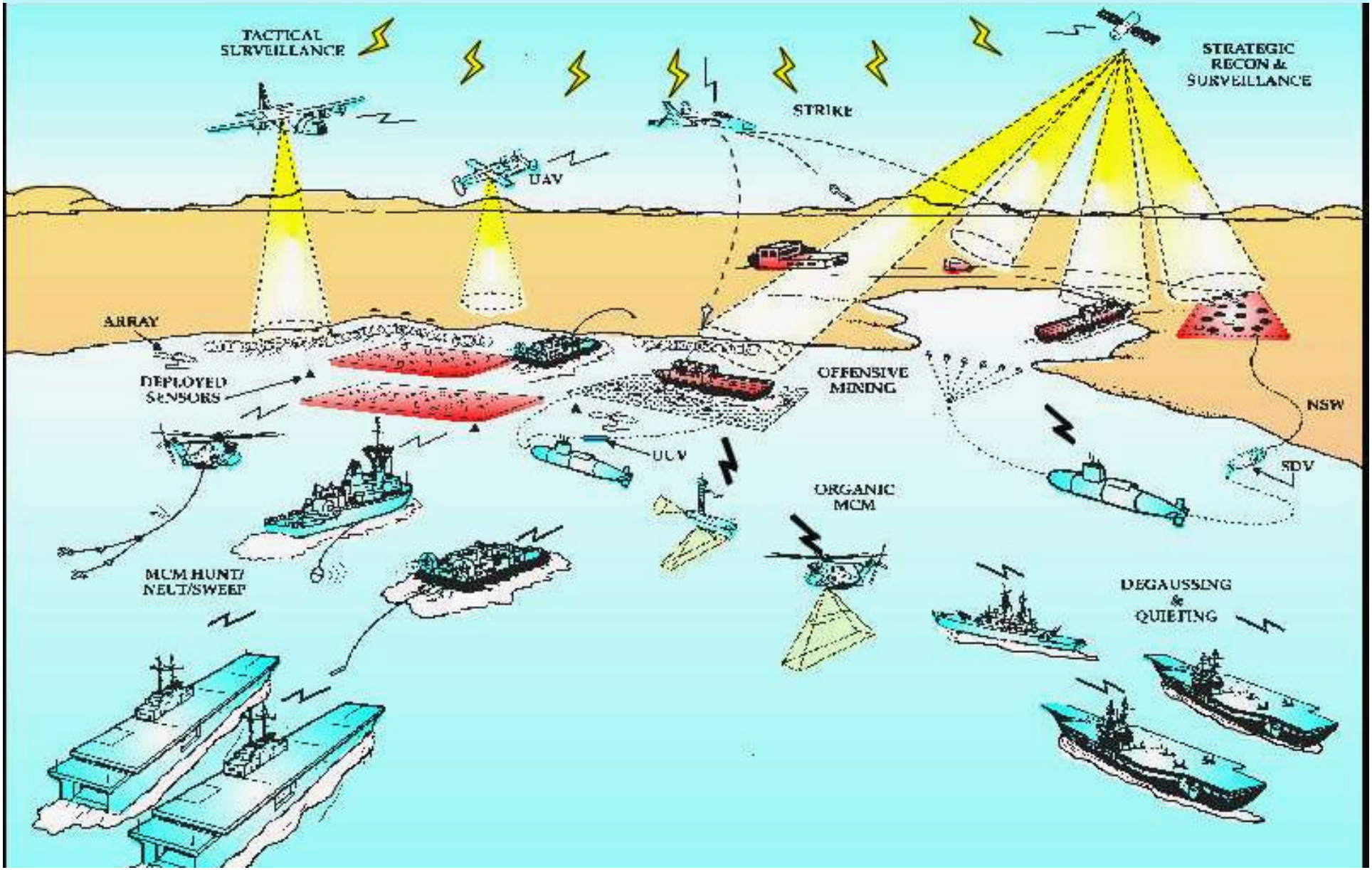


Environmental

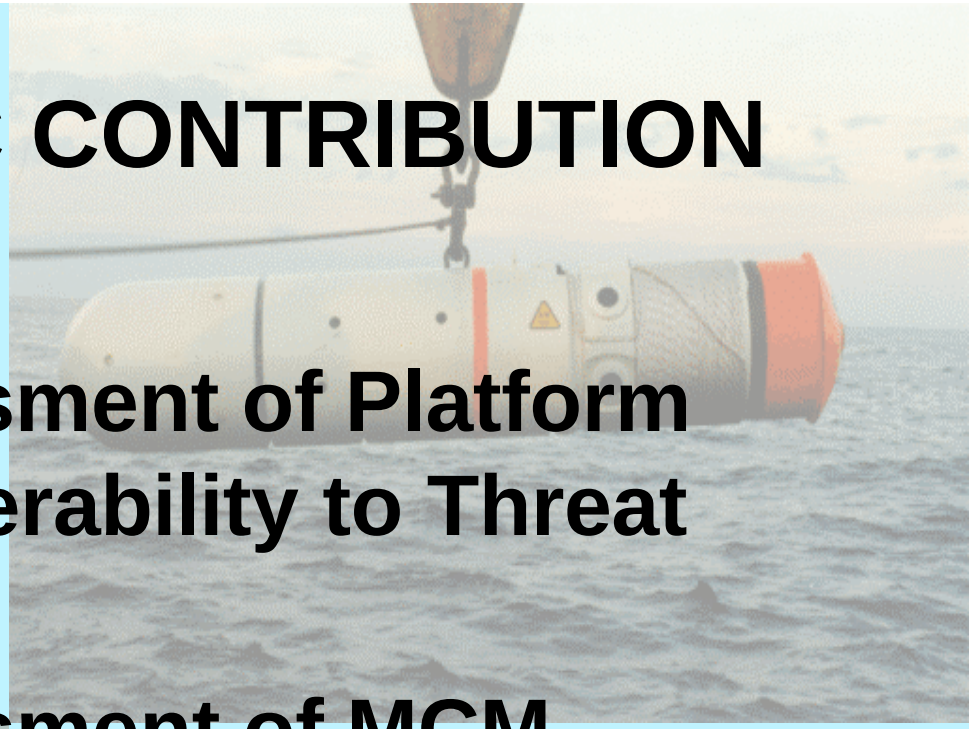
Contact Data

Sensor Data

GOAL: INTEGRATED CAPABILITIES



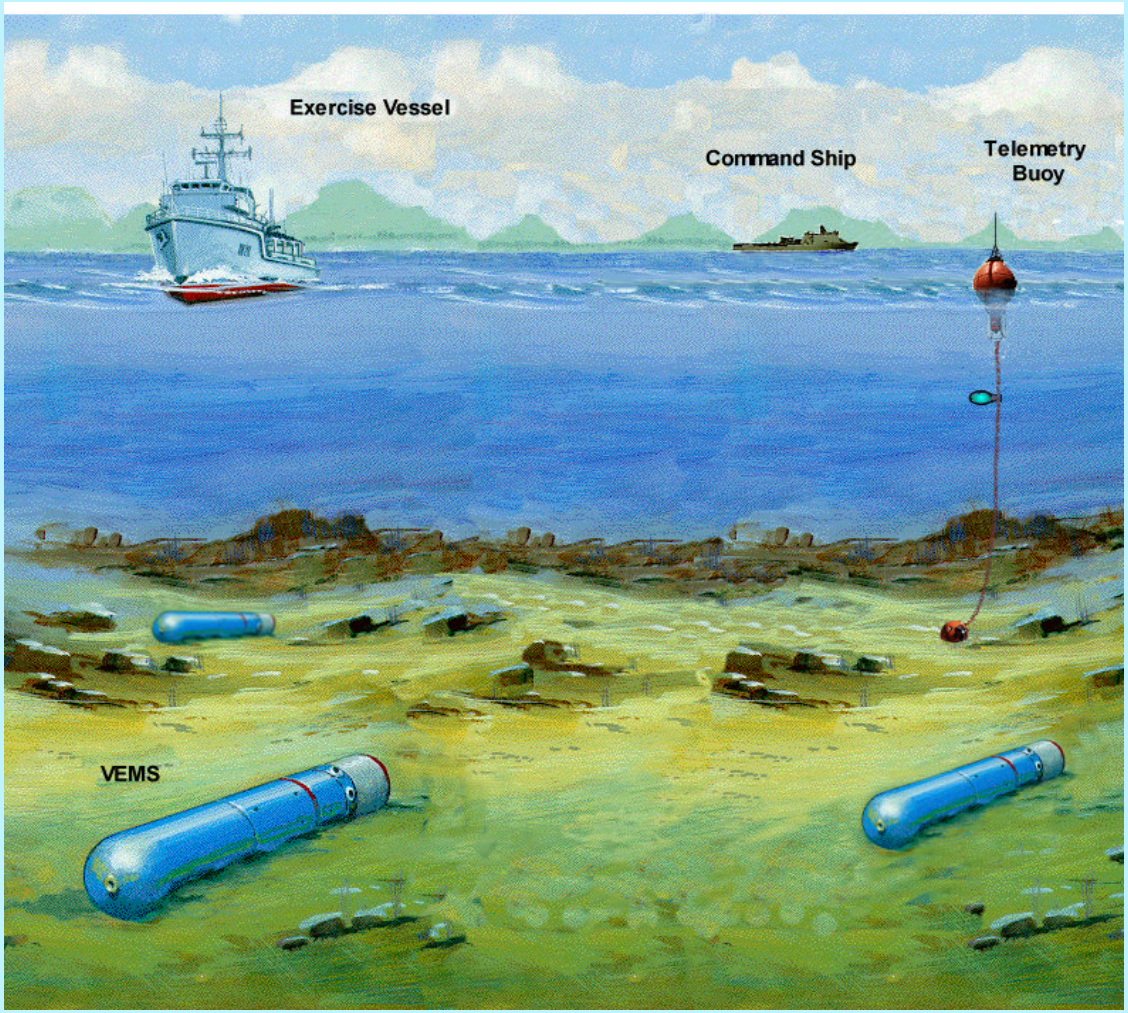
VEMS ORGANIC CONTRIBUTION



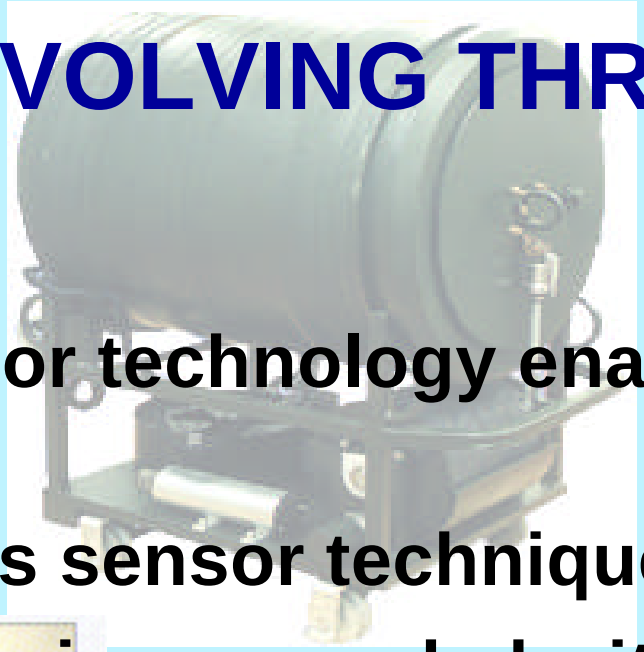
- **Real-Time Assessment of Platform and System Vulnerability to Threat Mines**
- **Real-Time Assessment of MCM System Performance**
- **Raise Fleet Awareness of Mines**

PLATFORM INTEGRATION CONCEPT

- **Utilize Existing VEM Mk 74 / Mk 75 Assets / Capabilities**
- **Transfer Real-Time VEMS Data to Any Platform or Shore Station via Telemetry Buoys and RF / SATCOM Link**



THE EVOLVING THREAT



- **Microprocessor technology enables smart mines**
- **“Smart” mines sensor techniques**
- **Older mines being upgraded with new technology**

Upgrading
This mine from War II has recently been upgraded with modern sensors.

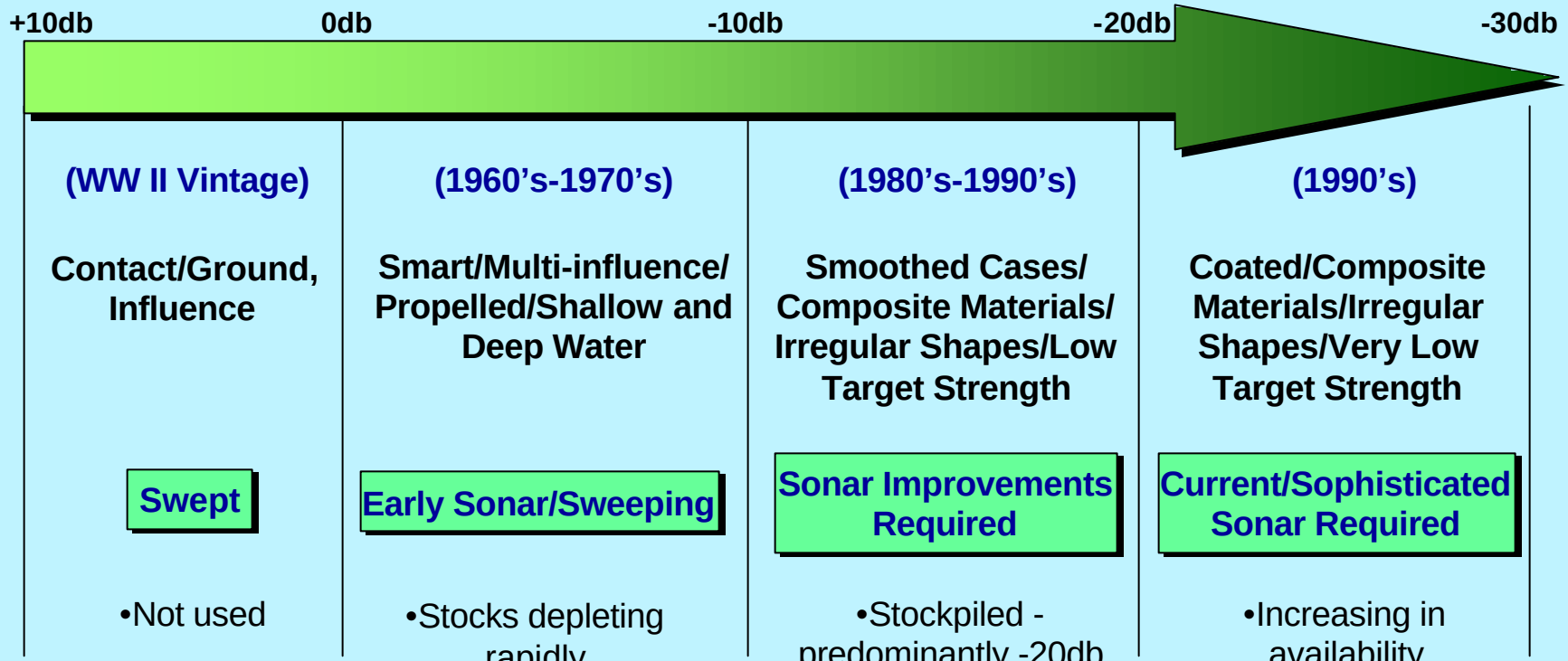
THREAT EVOLUTION CREATES CAPABILITIES SHORTFALL

- **Reduced effectiveness against “Smart” mines**
- **Increasing risk to operator due to enhanced localization techniques**
- **Flexibility is limited. “Smart” mines make finding a common sweep configuration for mixed minefields increasingly difficult**

MAN STILL IN MINEFIELD

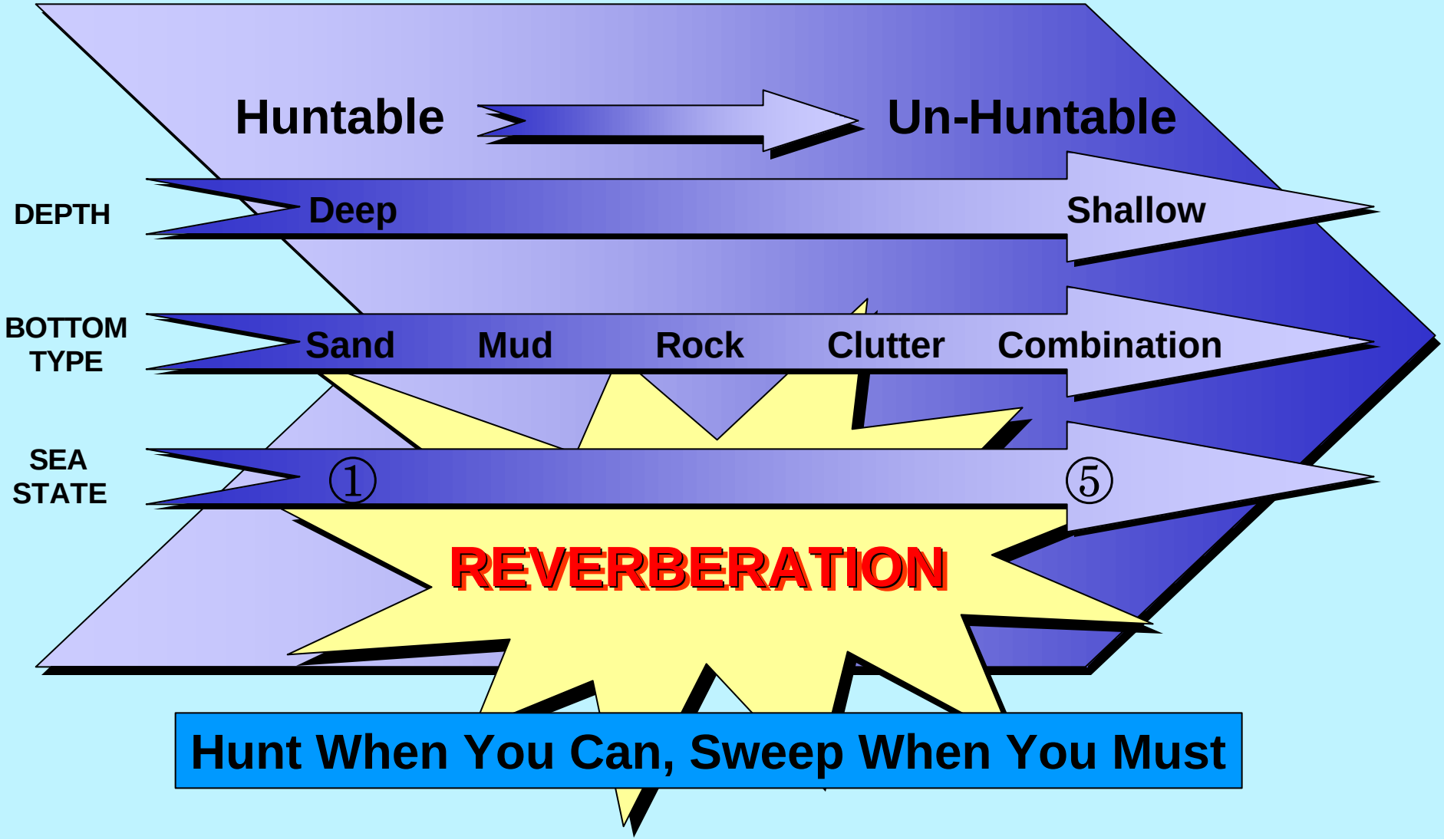
THREATS ARE GETTING QUIETER

Target Strength and Increasing Mine Capability



EMPHASIS ON LITTORAL OPERATIONS

Wind Speed, Water Temp, Water Depth and Bottom Type
All Drive Sonar Performance



WHERE CAN WE GO?

- **Emulation Sweeping - For high confidence in clearance operations for the traffic ship**
- **Unmanned - To get Marines and Sailors out of the minefield**

"Speed the MCM Tactical Timeline and Eliminate the Requirement for Manned Operations in Minefields."*

*FY00 MINE WARFARE CERTIFICATION PLAN

JAMMING/SPOOFING?

Questions/Comments?